

# Fluctuating blood pressure associated with risk of cerebrovascular disease

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The risk of cerebrovascular diseases appears to be higher among individuals with fluctuating blood pressure in addition to high blood pressure, according to a report in the May issue of *Archives of Neurology*.

Cerebrovascular disease, which includes stroke and other disorders affecting blood vessels in the brain, is associated with [cognitive decline](#) and disability in older adults, according to background information in the article. Elevated blood pressure can cause cerebrovascular disease and has also been shown to be associated with poorer cognitive function and the risk for Alzheimer's disease. Studies that examine associations between blood pressure and cerebrovascular disease generally consider blood pressure measurements at only one time point.

Adam M. Brickman, Ph.D., of Columbia University's Taub Institute, New York, and colleagues studied 686 older adults without dementia who had blood pressure measurements taken during three study visits at 24-month intervals and underwent structural [magnetic resonance imaging](#) (MRI) to detect cerebrovascular disease. The researchers divided the participants into four groups depending on whether their blood pressure was high or low and whether they had high or low fluctuations in blood pressure between visits.

In general, persons in the two [high blood pressure](#) groups had either hypertension or prehypertension, whereas those in the other two groups had blood pressure that was considered normal. Those with the lowest

fluctuations experienced changes of about 5.5 percent (among those with low blood pressure) and 5.2 percent (among those with high blood pressure), compared with 14.2 percent among those in the high-fluctuating groups.

Over the three-year period, elevated blood pressure and fluctuations in blood pressure were both associated with cerebrovascular disease. Either factor was independently associated with an increased risk, and those with higher average blood pressure and more fluctuation had proportionately more cerebrovascular disease than did those with either condition alone.

Participants who had the highest blood pressure and fluctuation levels were most likely to be treated with antihypertensive medications, suggesting that a lack of treatment compliance may be one source of fluctuation.

"Cerebrovascular disease is associated with a constellation of conditions that lead to disability, including cognitive impairment, mood and movement disorders," the authors conclude. "Although the control of elevated blood pressure or the treatment of hypertension is an obvious and well-replicated conclusion, these findings suggest that management of blood pressure fluctuations, even in normotensive older adults, may be beneficial in reducing the risk of cerebrovascular disease and in maximizing healthy cognitive aging."

**More information:** Arch Neurol. 2010;67[5]:564-569.

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